

Accepted Manuscript

Title: Studies of mass transfer at a spiral-wound woven wire mesh rotating cylinder electrode

Authors: Ali H. Abbar, Rasha H. Salman, Ammar S. Abbas

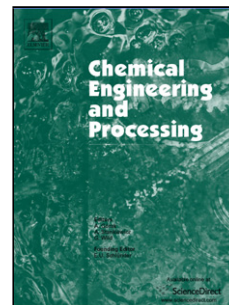
PII: S0255-2701(18)30036-9
DOI: <https://doi.org/10.1016/j.cep.2018.03.013>
Reference: CEP 7223

To appear in: *Chemical Engineering and Processing*

Received date: 10-1-2018
Revised date: 10-3-2018
Accepted date: 13-3-2018

Please cite this article as: Abbar AH, Salman RH, Abbas AS, Studies of mass transfer at a spiral-wound woven wire mesh rotating cylinder electrode, *Chemical Engineering and Processing* (2010), <https://doi.org/10.1016/j.cep.2018.03.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Studies of mass transfer at a spiral-wound woven wire mesh rotating cylinder electrode

Ali H. Abbar*¹, Rasha H. Salman², Ammar S. Abbas²

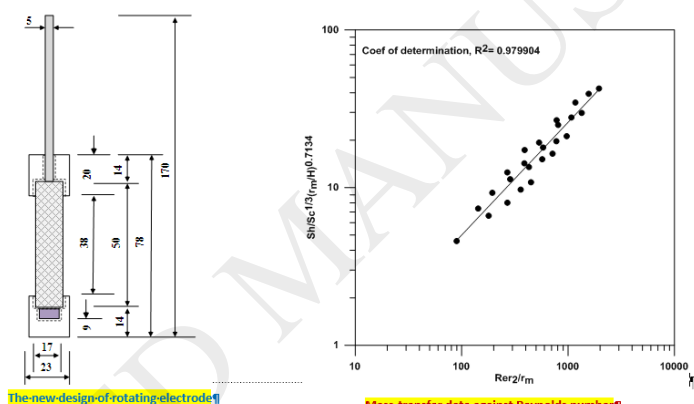
¹Chemical Engineering Department, University of Al-Qadisiyah, Iraq

²Chemical Engineering Department, University of Baghdad, Iraq

*E-mail: ali.abbar@qu.edu.iq, aliabbar68@yahoo.com

Graphical abstract

Mass transfer at a spiral-wound woven wire mesh rotating cylinder electrode



The new design of rotating electrode

Mass transfer data against Reynolds number

[All dimensions in mm]

$$Sh = 0.6032 \left(Re \frac{r_2}{r_m} \right)^{0.521} Sc^{1/3} \left(\frac{H}{r_m} \right)^{0.573}$$

r_1	Internal radius (m)	Sh	Sherwood number = $k_c d / D$	ω	Rotation speed (rpm or s^{-1})
r_2	External radius (m)	d_h	Hydraulic diameter = $4e/A$	Sc	Schmidt number = ν/D
r_m	Mean radius = $(r_1^2 + r_2^2)^{1/2}$	ϵ	Porosity	ν	Kinematic viscosity ($m^2 s^{-1}$)
H	Distance between wires (m)	A	Specific surface area (m^{-1})	D	Diffusion coefficient ($m^2 s^{-1}$)
Re	Reynolds number = $\omega r_2 d_h \nu$	k_c	Mass-transfer coefficient ($m s^{-1}$)		

Highlights

- Mass transfer behavior of a spiral-wound woven wire mesh rotating cylinder electrode was studied.

Download English Version:

<https://daneshyari.com/en/article/7088568>

Download Persian Version:

<https://daneshyari.com/article/7088568>

[Daneshyari.com](https://daneshyari.com)